Virginia Medical Monitoring Project
Descriptive Report of Interview Data, 2009

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LIST OF ABBREVIATIONS

ACIP	Advisory Committee on Immunization Practices
ADAP	AIDS Drug Assistance Program
AIDS	Acquired Immune Deficiency Syndrome
ART	Antiretroviral Therapy
ARV	Antiretroviral
ASD	Adult Spectrum of Disease
BRFSS	Behavioral Risk Factor Surveillance System
CAB	Community Advisory Board
CAPI	Computer Assisted Personal Interview
CDC	Centers for Disease Control and Prevention
CD4	Cluster of Differentiation 4, or type of immune cell that bears this class of receptor
DDP	Division of Disease Prevention
EPL	Estimated Patient Load
FSF	Facility Sampling Frame
GED	General Education Development
HCSUS	HIV Cost and Services Utilization Study
HIV	Human Immunodeficiency Virus
HMO	Health Maintenance Organization
HPV	Human Papillomavirus
HRSA	Health Resources and Services Administration
MMP	Medical Monitoring Project
MRA	Medical Record Abstraction
MSM	Men Who Have Sex with Men
MSW	Men Who Have Sex with Women
NCS-R	National Comorbidity Survey Replication
OB/GYN	Obstetrics/Gynecology
PAB	Provider Advisory Board
PCP	*Pneumocystis jiroveci* pneumonia
PDP	Population Definition Period
PHQ-8	Patient Health Questionnaire-8
PLWHA	People Living with HIV/AIDS
QDS	Questionnaire Development Software
SAS	Statistical Analysis Software
SHAS	Supplement to HIV/AIDS Surveillance
SHDC	Survey of HIV Disease and Care
SSDI	Social Security Disability Insurance
SSI	Supplemental Security Income
STD	Sexually Transmitted Disease
TI	Telephone Interviewing
VA	Virginia
VL	Viral Load
VDH	Virginia Department of Health
WSM	Women Who Have Sex with Men
WSW	Women Who Have Sex with Women

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Executive Summary

Background

The Medical Monitoring Project (MMP) is a Centers for Disease Control and Prevention (CDC)-funded supplemental HIV surveillance project being conducted in 23 U.S. states and cities to gather data about the clinical and behavioral characteristics of adults in care for HIV. Since 2007, this project is conducted in Virginia through the Virginia Department of Health's Division of Disease Prevention. The goal of MMP is to generate nationally-representative data about adults in care for HIV. To that end, random, population-based samples of adults in care for HIV are drawn from each project area, and MMP staff conduct both an interview and a matched medical record abstraction with all selected participants.

This report summarizes findings from the interview component of the 2009 data collection cycle in Virginia, which extended from July of 2009 through May of 2010.

Methods

For the 2009 data collection cycle, 27 eligible medical facilities providing outpatient HIV care in Virginia were selected from all outpatient HIV care providers in the state based on their estimated patient loads. Of the sampled facilities, 22 agreed to participate. A random sample of 400 patients was drawn for the 2009 data collection cycle from the participating facilities. Out of the 400 in the sample, 385 patients were deemed eligible for MMP participation.

Virginia MMP staff conducted structured, face-to-face interviews with 136 sampled patients during the 2009 data collection cycle. Topics covered in the interview ranged from respondents' demographic characteristics to medication adherence factors, access to HIV care and ancillary services, sexual behaviors, and selected health outcomes.

Selected Findings

Demographic Characteristics

There were some demographic differences between MMP respondents and the population of adult Virginians living with HIV in 2009. Blacks and Hispanics made up a larger percentage of MMP respondents than in the population of adults living with HIV/AIDS in Virginia in 2009. Furthermore, females were over-represented in the participant population, as were older participants, when compared with all HIV positive adults.

4 in 10 respondents (40%) were determined to be living in poverty, based on reported household income, household size and the U.S. Census Bureau's poverty guidelines. Nearly 1 in 4 respondents (24%) reported not completing high school. More than a quarter (28%) of respondents reported not having any health insurance in the 12 months before the interview.

Access to Care

All respondents reported having a usual provider of HIV care, though more than 1 in 10 (13%) reported receiving HIV care at an emergency room or urgent care center in the year preceding the interview. Slightly less than 1 in 10 (9%) reported being admitted to a hospital for an HIV-related illness during that period.

The greatest unmet need for an ancillary service was for dental care, with almost 1 in 4 of all respondents (24%) reporting such a need.

HIV Treatment and Adherence

Almost all respondents (95%) reported any history of antiretroviral therapy (ART) use, while almost 9 in 10 (89%) said they were on ART at the time of the interview. While almost 3 in 4 respondents on ART (74%) reported following their dosing schedule in the past three days, only 37% said that they never skipped medications.

The most common source of payment for ART was the AIDS Drug Assistance Program (ADAP) with almost half of respondents who were on ART (47%) reporting ADAP as the primary funding source.

Sexual Behavior

Just more than half (54%) of all respondents reported any sexual activity in the 12 months preceding the interview. Sexually active MSM had a greater range in the number of reported partners (1 to 50) than either MSW (1 to 4) or WSM (1 to 3). However, the median number of sex partners was similar for MSM (2) and MSW/WSM (1). The low number reporting any sexual activity during the year before the interview and the small overall sample size complicates further discussions of respondents' sexual behaviors.

Drug and Alcohol Use

Respondents were far more likely to have tried smoking at some point than the population of Virginia as a whole (64% vs. 44%). Furthermore, Virginia MMP respondents were more likely to currently be daily smokers (39% vs. 14%).More than 6 in 10 respondents (63%) reported any alcohol use in the past 12 months, though 1 in 3 of those who drank in the year before the interview (34%) did not drink in the past 30 days at all. Of those who drank in the last month, 3 in 10 (31%) said they had engaged in binge drinking in that period. However, binge drinkers only comprised 13% of the whole sample.

Depression

More than 1 in 5 (21%) participants met the scoring criteria for moderate to severe depression at the time of the interview, according to their PHQ-8 depression screen score.

Health Conditions and Preventive Therapy

Significant numbers of participants were unable to recall (or refused to state) their first CD4 test result (33%) and their lowest ever CD4 test result (22%).Nearly 1 in 4 respondents (24%) said their lowest CD4 count had been between 0 and 99 cells/mm^3. Respondents had more difficulty recalling viral load results, with 42% stating that they did not know their first viral load test result and 36% stating that they did not know their highest ever viral load. More than one in five (22%) said that their highest viral load had been >100,000 viral copies/mL.

Background

The Medical Monitoring Project (MMP) is a Centers for Disease Control (CDC)-sponsored surveillance project designed to collect nationally-representative data about people living with HIV/AIDS (PLWHA) in the United States (1). It was intended to complement data collection efforts undertaken on a more routine basis as a function of core HIV surveillance, which tracks primary trends in HIV/AIDS morbidity and mortality. MMP builds on previous supplemental HIV surveillance projects, such as the Adult/Adolescent Spectrum of HIV Disease (ASD) project, the Supplement to HIV/AIDS Surveillance (SHAS) project, the Survey of HIV Disease and Care (SHDC) and SHDC-Plus (2). MMP's primary aims are defined by the CDC as follows (2):

Describe the clinical and virologic status of adults in care for HIV
Describe the prevalence of co-morbidities related to HIV disease
Describe HIV care and support services received and the quality of such services
Determine prevalence of ongoing risk behaviors and access to, and use of, prevention services among persons living with HIV
Identify met and unmet needs for HIV care and prevention services to inform prevention and care planning groups, health care providers, and other stakeholders.

While there are similarities between MMP and previous supplemental HIV surveillance efforts, MMP was designed to combine two methods of data collection: a patient interview and a matched medical record abstraction. Due to the population-based approach and the sampling methodology, findings are intended to be generalized to the broader population of adults in care for HIV in the United States (2). MMP data collection has been conducted in Virginia by the Virginia Department of Health's Division of Disease Prevention (DDP) since the 2007 project cycle. This report summarizes findings from the patient interview component of the 2009 data collection cycle, which extended from July of 2009 through May of 2010.

Methods

Sampling Methodology

People in care for HIV are selected for inclusion in MMP based on a 3-stage, cross-sectional probability sampling methodology. At the national level (first stage), in 2004, a probability-proportional- to-size methodology was used to select project areas (states and cities) for inclusion in MMP based upon known AIDS prevalence in 2002. All 26 selected project areas agreed to participate in MMP data collection, and Virginia was included in this sample.

For the second stage, within Virginia, a list of all known providers of HIV care to adults was generated and served as the Facility Sampling Frame (FSF). From each provider, an estimated patient load (EPL) was requested for a given, four-month time period (January 1, 2009 to April 30, 2009), and a sample of 27 of these facilities was chosen for inclusion in the 2009 data collection cycle. Of the 27 sampled facilities, 22 agreed to participate. From the sampled, eligible, and participating Virginia HIV care facilities (N=22), lists of all patients receiving HIV care (defined as HIV medical care visits or prescription of HIV medications) within the Population Definition Period (PDP; January 1, 2009 through April 30, 2009) were requested by the Virginia Department of Health (VDH). These patient lists were de-identified and sent to the CDC, where a patient sample was drawn. For the 2009 cycle in Virginia, this sample consisted of 400 patients.

After receiving the patient sample from the CDC, VDH re-identified the selected individuals and

coordinated with the sampled HIV care providers to make contact with these patients so that they could be recruited to MMP. Sampled individuals who agreed to participate in Virginia MMP were offered an in-person interview, for which they were compensated with a $25 Wal-Mart gift card. Interviews were conducted face-to-face in settings chosen by the respondents and lasted between 45 minutes and one hour for the standard interview, or 15 minutes for the short interview. A medical record abstraction was completed on all eligible participants for whom medical records were made available; however, medical record abstraction data will not be summarized in this report.

Data Sources

For the 2009 cycle, four survey instruments were employed, depending on the circumstances of the interview:

1. 2009 Standard Questionnaire for Medical Monitoring Project (MMP), Version 5.4.0
2. 2009 Short Questionnaire for Medical Monitoring Project (MMP), Version 5.2.0
3. Cuestinario estandar del projecto de monitoreo médico (MMP) del 2009, Versión 5.4.0
4. Cuestinario breve del projecto de monitoreo médico (MMP) del 2009, Versión 5.3.0.

The “standard” instruments (1 and 3 above) are the long-form questionnaires in English and Spanish, while the “short” instruments (2 and 4 above) are the abbreviated versions in English and Spanish. The short form interview is to be used only when a respondent is too ill to complete the longer interview or when the interview is conducted through a translator. Interviews were conducted using computer assisted personal interview (CAPI) devices (laptops), though paper versions of the questionnaires were available in the event that a device was not working in the field. CAPI devices ran an interview application using the NOVA Research Company’s Questionnaire Development System (QDS), Version 2.5 (Bethesda, Maryland).

Response Rates

Within Virginia, 22 of the 27 selected and eligible HIV care facilities agreed to participate in MMP and provided patient lists. Five facilities refused participation in the 2009 cycle. Virginia’s 2009 facility participation rate can be calculated as follows: [(22/27)*100] = 81.48%.

From these 22 facilities, a total of 400 patients were selected for inclusion in the 2009 Virginia sample. Of these 400 patients, 15 were deemed ineligible for participation in MMP. Ninety-one individuals were classified as refusals, while MMP staff were unable to locate 57 sampled patients; and 83 were located but did not respond to contact from MMP or facility staff. Interviews were scheduled with 148 respondents, and 136 interviews (132 standard, 4 short) were conducted. Of the remaining 12 sampled patients who agreed to interviews, 11 were noted as “no-shows” at the scheduled interview time. It is unclear if one of the remaining sampled patients was a no-show. An interview was scheduled, but not conducted and attempts were made to contact the patient to follow up, but no outcome was noted in the Virginia MMP participant tracking documents. Furthermore, interview dispositions are unavailable for six of the 400 sampled patients due to a tracking error. The interview completion rate is calculated based on the 136 completed interviews of 385 eligible respondents: (136/385)*100 = 35.3%. The CDC calculates a project area’s response rate more broadly, as the product of the participation rates at each stage of the sampling. The national project area participation rate was 100%. Therefore, Virginia’s 2009 interview response rate was calculated as: (1.00*.8148*.35)*100 = 28.5%.

Data Analysis

This analysis was conducted on the final 2009 interview dataset containing data from all 132

standard interviews. As the short questionnaire covers only a limited set of topics, responses from the four short interviews that were conducted in 2009 were not included in this analysis. Descriptive analyses were carried out in SAS 9.3. Data in this analysis were not weighted as the 2009 Virginia interview response rate was below the CDC's established cutoff for weighting (combined rate of 50% across all three stages of the study design). Unweighted frequencies and percentages were calculated for categorical variables. Some of these reports were further stratified by a calculated gender variable (combination of birth gender and self-identified gender), by birth gender, or by selected sexual behavior categories. Means, medians, and ranges were also calculated on selected numeric variables, with some reports stratified by gender.

Findings

Demographics

The first section of the MMP questionnaire collects demographic information on all respondents. In addition to data about age, race/ethnicity, gender, and educational level, this section also asks about the respondents' household income level, country of birth, sexual orientation, recent incarceration history, health insurance status, and any periods of homelessness in the last 12 months. Demographic questions are asked of all respondents. Responses to questions from the Demographics section of the questionnaire are summarized in Tables 1-5.

Most respondents (62%) were male, with an additional 35% female and 3% (n=4) transgender (Table 1). Only one of the four transgender respondents self-identified as "transgender". The remaining three were classified as transgender because their stated birth gender differed from their self-identified gender. Most respondents (63%) also reported their race/ethnicity as non-Hispanic, Black, while 26% reported their race/ethnicity as non-Hispanic, White, 9% reported their race/ethnicity as Hispanic or Latino, and 2% reported another race/ethnicity[1]. Respondents' reported age at interview ranged from 21 to 73, with a median of 49 (not in table). The largest percentage of respondents (42%) reported being between 45 and 54 years of age on the date of interview, with another 24% reporting an age of 55 years or more, and smaller percentages reporting an age between 35 and 44 years (24%), between 25 and 34 years (7%), or between 18 and 24 years (4%).

Nearly a quarter of the respondents (24%) reported not completing high school or earning a GED, while almost half (49%) had either some college experience or a college degree. Fifty-two percent of respondents self-identified as heterosexual or "straight", while 36% self-identified as homosexual, gay or lesbian, with an additional 9.1% as bisexual, and three respondents (2%) stated that they identified with some other sexual orientation that did not fall into one of these categories.

Table 1: Number and percentage of respondents, by selected demographic characteristics

	No.	(%)*
Gender†		
Male	82	(62.1)
Female	46	(34.9)
Transgender	4	(3.0)
Race/Ethnicity		
Black, non-Hispanic	83	(62.9)
White, non-Hispanic	34	(25.8)
Hispanic or Latino§	12	(9.1)
Other**	3	(2.3)
Age at interview (yrs)		
18-24	5	(3.8)
25-34	9	(6.8)
35-44	31	(23.5)
45-54	55	(41.7)
55+	32	(24.2)
Educational level		
<High school	31	(23.5)
High school diploma or GED	36	(27.3)
>High school	65	(49.2)
Sexual orientation		
Homosexual, gay or lesbian	47	(35.6)
Heterosexual or straight	69	(52.3)
Bisexual	12	(9.1)
Other	3	(2.3)
Refused	1	(0.8)
TOTAL	**132**	**(100)**

*Percentages may not add to 100% due to rounding.
†Respondents were classified as transgender if their birth gender differed from their self-identified gender or if they self-identified as transgender.
§Hispanics may be of any race.
**Other category includes Asian, Native Hawaiian/Pacific Islander, Native American/Alaskan Native, or multiracial.

The Commonwealth of Virginia is divided into five Health Planning Regions: Northwest, Northern, Southwest, Central , and Eastern. The health region distribution of the 132 Virginia MMP interview respondents from the 2009 data collection cycle is given below (Table 2).

Table 2: Number and percentage of respondents by Virginia health planning region

	No.	(%)
Health Planning Region		
Northwest	17	12.9
Northern	26	19.7
Southwest	10	7.6
Central	49	37.1
Eastern	30	22.7
TOTAL	**132**	**(100)**

A small minority of the sample (n=6) reported incarceration in jail or prison in the last 12 months (Table 3). A slightly larger, but still small, number of respondents (n=13) reported being homeless at any point in the last 12 months, as defined by living for any period on the street, in a shelter, in a single room occupancy hotel, or in a car.

Table 3: Number and percentage, respondents reporting incarceration or homelessness in past 12 months

	No.	(%)
Jail or prison in past 12 months		
Yes	6	(4.5)
No	126	(95.5)
Homeless in past 12 months		
Yes	13	(9.8)
No	119	(90.2)
TOTAL	**132**	**(100)**

Respondents' primary financial support most frequently came from salary or wages (42%) or from Supplemental Security Income (SSI)/Social Security Disability Insurance (SSDI) or another form of public assistance (35%), with a smaller percentage of the sample reporting primary reliance on family, partners or friends (14%) for financial support (Table 4). In addition, respondents were asked to estimate their combined household income in the last complete calendar year (for 2008 if the interview was conducted in 2009, and for 2009 if the interview was conducted in 2010). The largest group (31%) said that this figure fell between $0 and $9,999 per year, with an additional 26% reporting that their annual income was $10,000 to $19,999. Only 15% reported an annual household income of $50,000 or more. Based on annual household income, reported household size, and the poverty thresholds established in 2008 and 2009 by the U.S. Census Bureau (3,4), the percentage of respondents living at or below the poverty level was determined to be 40%.

Table 4: Number and percentage, respondents' sources of financial support and annual income

	No.	(%)*
Primary source of financial support		
Salary or wages	55	(41.7)
SSI or SSDI	46	(34.8)
Family, partner or friends	19	(14.4)
Pension or retirement	2	(1.5)
Savings or investments	2	(1.5)
Other public assistance/welfare	1	(0.8)
No income or financial support	1	(0.8)
Other	6	(4.5)
Annual household income		
$0 to $9,999	41	(31.1)
$10,000 to $19,999	34	(25.8)
$20,000 to $29,999	19	(14.4)
$30,000 to $39,999	8	(6.1)
$40,000 to $49,999	6	(4.5)
$50,000 or more	20	(15.2)
No income data	4	(3.0)
Living at or below federal poverty level		
Yes	53	(40.2)
No	75	(56.8)
No income data	4	(3.0)
TOTAL	**132**	**(100)**

*Percentages may not add to 100% due to rounding.

Among all respondents, 72% noted that they had some form of health coverage in the last 12 months (Table 5). Of those with health coverage, 24% experienced a coverage gap during that period. Types of coverage reported include Medicaid (44%), Medicare (40%), and private insurance/HMO (Health Maintenance Organization) (37%, Figure 2). Health coverage types were not necessarily mutually exclusive; a respondent was able to report more than one type of health coverage.

Table 5: Number and percentage, respondents' sources of health coverage in past 12 months

	No.	(%)
Any health insurance or coverage		
Yes	95	(72.0)
No	37	(28.0)
TOTAL	**132**	**(100)**
Gap in health coverage in past 12 months*		
Yes	23	(24.2)
No	72	(75.8)
TOTAL	**95**	**(100)**
Types of health coverage*†		
Private insurance or HMO	35	(36.8)
Medicaid	42	(44.2)
Medicare	38	(40.0)
Ryan White	8	(8.4)
Other	8	(8.4)

*Questions only asked of those who had health insurance in past 12 months.
†Categories are not mutually exclusive; respondents could select more than one option, so percentages will total to >100%. N=95.

Access to Care

The Access to Care section of the 2009 MMP questionnaire includes three subsections: HIV Testing and Care Experiences, Sources of Care, and Met and Unmet Needs. These sections collect data about HIV diagnosis and testing, where and how often patients have received both general medical care and HIV-specific medical care within the year before the interview, the kinds of ancillary services that the respondents have received in the last 12 months, information about perceived needs for services and barriers to receiving services (if services were not received), and perceived health literacy. Data from these sections are summarized in Tables 6-11.

HIV Testing and Care Experiences

Most participants (58%) had been diagnosed with HIV for more than five years at the time of the interview, while an additional 26% had been diagnosed for five years or less and 22 respondents were unable to fully recall the month and year of diagnosis, therefore time since diagnosis could not be computed (Table 6). Two respondents were diagnosed within a year of the interview date, and both reported previously receiving a negative HIV test (not in tables).

Table 6: Number and percentage, time since diagnosis

	No.	(%)*
Time since diagnosis		
>5 years	76	(57.6)
0 to 5 years	34	(25.8)
Unknown	22	(16.7)
TOTAL	**132**	**(100)**

*Percentages may not add to 100% due to rounding.

Several questions about the HIV testing experience were asked of the 34 respondents who had been diagnosed within the past five years (Table 7). Forty-one percent received their positive HIV test at a private doctor's clinic, with 14% reporting they tested positive at a health department

clinic, another 14% during an inpatient hospital stay, and 12% at a primary care clinic or community health center. Fifty-three percent reported being tested because of another illness that was not a sexually transmitted disease (STD).

Table 7: Number and percentage, selected HIV testing and linkage to care measures among those diagnosed in past 5 years

	No.	(%)*
Type of facility where tested†		
Private doctor	14	(41.2)
Primary care clinic/community health center	4	(11.8)
Health department	5	(14.7)
Emergency room	3	(8.8)
Inpatient hospital	5	(14.7)
STD clinic	1	(2.9)
Other	2	(5.9)
Main reason tested†		
Concerned about exposure through sexual contact	4	(11.8)
Due to other illness (not STD)	18	(52.9)
Due to pregnancy	1	(2.9)
Personal initiative to routinely test	2	(5.9)
Provider recommendation as part of routine care	1	(2.9)
Requirement (military, court order, insurance)	1	(2.9)
Other	7	(20.6)
Health department/healthcare provider offered to inform partners†		
Yes	22	(64.7)
No	12	(35.3)
Accessed HIV care within three months of diagnosis†		
Yes	30	(88.2)
No	3	(8.8)
Unknown	1	(2.9)
TOTAL	**34**	**(100)**

*Percentages may not add to 100% because of rounding.

†Questions only asked of those who had been diagnosed within the past five years.

Twenty-two respondents noted that either the health department or a health care provider offered to notify (or help with the notification of) sex or drug use partners. Of these 22 respondents who reported some offer of partner notification services, 73% reported that they requested that the health department or healthcare provider tell all of their partners (not in tables), while four noted that they asked them not to tell any of their partners, and one reported that he/she did not have any partners. Among those diagnosed within the past five years, 88% reported entering HIV care within three months of diagnosis. Almost all of the respondents (99%, n=130) received HIV medical care from some source within the six months prior to the interview (not in table).

Sources of Care

Table 8 summarizes the sources of general medical care and HIV medical care received by respondents within the last 12 months. All respondents reported having one usual place where they received HIV medical care within the last 12 months. However, only 53% reported having a regular provider of general medical care during that period. Of the 46 individuals who reported both female birth gender and self-identified gender, only eight had received HIV care at an obstetrics/gynecology (OB/GYN) clinic in the last 12 months. A minority of respondents reported receiving HIV care at an

emergency room or urgent care center (13%) within the past 12 months. Smaller numbers reported being admitted to a hospital because of an HIV-related illness (9%), receiving inpatient mental health care (3%) or receiving inpatient drug or alcohol treatment (2%) during the 12 months prior to the interview.

Table 8: Number and percentage of respondents reporting specific sources of care in past 12 months

	No.	(%)
One usual place for HIV care		
Yes	132	(100)
No	0	(0.0)
One usual place for general medical care		
Yes	70	(53.0)
No	62	(47.0)
HIV care at emergency room/urgent care center		
Yes	17	(12.9)
No	115	(87.1)
Admitted to a hospital for an HIV-related illness		
Yes	12	(9.1)
No	120	(90.9)
Admitted to inpatient mental health facility		
Yes	4	(3.0)
No	128	(97.0)
Admitted to inpatient drug/alcohol treatment facility		
Yes	3	(2.3)
No	129	(97.7)
TOTAL	**132**	**(100)**
HIV care at an OB/GYN clinic*		
Yes	8	(17.4)
No	38	(82.6)
TOTAL	**46**	**(100)**

*Question only asked of those reporting both birth gender and self-identified gender as female.

Met and Unmet Needs

Ancillary services received by the respondents in the last 12 months are summarized in Table 9. Among the 16 services that respondents were specifically asked about, the most commonly reported services received were HIV case management (67%), dental services (55%), HIV prevention counseling (47%), the AIDS Drug Assistance Program (ADAP; 47%), and public benefits (43%) such SSI or SSDI. Services received by less than 10% of the sample included home health services, drug or alcohol counseling or treatment, childcare services, interpreter services, and domestic violence services.

Table 9: Number and percentage, respondents who received ancillary services within past 12 months

Service*	**No.**	**(%)†**
HIV case management	89	(67.4)
Dental services	73	(55.3)
HIV prevention counseling	62	(47.0)
ADAP	61	(46.2)
Public benefits	57	(43.2)
Meal/food services	38	(28.8)
Transportation services	35	(26.5)
Professional ART adherence support	34	(25.8)
Mental health services	33	(25.0)
HIV peer group support	24	(18.2)
Shelter/housing services	22	(16.7)
Home health services	10	(7.6)
Drug/alcohol counseling or treatment	8	(6.1)
Childcare services	2	(1.5)
Interpreter services	2	(1.5)
Domestic violence services	0	(0.0)

*Among all respondents. N=132.

†Respondents were allowed to select more than one service, therefore percentages total to >100%.

Table 10 summarizes the number and percentage of respondents not receiving services and those who needed services (among those not receiving services). The most frequently reported service need was for dental care (53%). Smaller numbers of respondents said that they needed public benefits (29%), transportation services (15%), HIV peer group support (12%), shelter or housing services (10%), and meal or food services (11%).

Table 10: Number and percentage, respondents not receiving ancillary services and respondents with an unmet need for services, among those who did not receive services, past 12 months

	Persons not receiving services*		Persons needing services†	
Service	**No.**	**(%)**	**No.**	**(%)**
HIV case management	43	(32.6)	7	(16.3)
Dental services	59	(44.7)	31	(52.5)
HIV prevention counseling	70	(53.0)	2	(2.9)
ADAP	70	(53.0)	3	(4.3)
Public benefits	75	(56.8)	22	(29.3)
Meal/food services	94	(71.2)	10	(10.6)
Transportation services	97	(73.5)	15	(15.5)
Professional ART adherence support	98	(74.2)	2	(2.0)
Mental health services	99	(75.0)	7	(7.1)
HIV peer group support	108	(81.8)	13	(12.0)
Shelter/housing services	110	(83.3)	11	(10.0)
Home health services	122	(92.4)	2	(1.6)
Drug/alcohol counseling or treatment	124	(93.9)	3	(2.4)
Childcare services	130	(98.5)	2	(1.5)
Interpreter services	130	(98.5)	0	(0.0)
Domestic violence services	132	(100.0)	1	(0.8)

*Among all respondents, N=132.

†Among respondents not receiving particular services. Respondents were only asked if they needed a specific service if they indicated that they had not received it. Therefore, the total N is different for each category of service. Percentages with unmet need for service are calculated out of the number not receiving the service, in first data column. Hence, for HIV Case Management, the unmet need calculation would be as follows: ((7/43)*100) = 16.3%.

Health literacy levels were assessed using a modified version of the three-item health literacy screen developed by Chew et al. (5). This screen included the following questions:

1. How often do you have problems learning about your medical condition because of difficulty understanding written information?
2. How confident are you filling out medical forms by yourself?
3. How often do you have someone help you read hospital materials?

Respondents generally reported a high level of perceived health literacy, as the majority reported that they never had problems learning about their medical condition due to difficulty understanding written information (72%; Table 11), that they were completely confident filling out medical forms by themselves (75%), and that they never had someone help them read hospital materials (72%, Table 11). Because response categories for the health literacy questions were modified from Chew's validated scale, a total score for the instrument could not be determined.

Table 11: Number and percentage, responses to health literacy questions

	No.	(%)*
Problems learning about condition		
Always	3	(2.3)
Most of the time	5	(3.8)
About half the time	8	(6.1)
Rarely	21	(15.9)
Never	95	(72.0)
Confident with forms		
Not at all confident	7	(5.3)
Somewhat confident	26	(19.7)
Completely confident	99	(75.0)
Help reading hospital materials		
Always	7	(5.3)
Most of the time	6	(4.5)
About half the time	5	(3.8)
Rarely	19	(14.4)
Never	95	(72.0)
TOTAL	**132**	**(100)**

*Percentages do not add to 100% due to rounding.

HIV Treatment and Adherence

The third module of the questionnaire collected information regarding HIV antiretroviral therapy (ART). Respondents were asked about current and historical use of ART, dosing and compliance issues, side effects, positive medication beliefs, support from family and friends, sources of payment for ART, drug holidays, and clinical trial participation within the past 12 months. Data from this module are summarized in Tables 12-17.

Most respondents (95%) reported taking ART at some point since their diagnosis, though a smaller proportion (89%) said that they were currently on ART (Table 12). Furthermore, most of those currently on antiretrovirals (ARVs, 67%) said that their medications had special instructions for dosing (e.g. “take with food” or “take on an empty stomach”), and among those who reported having special instructions (n=79), the majority reported that they always followed these instructions (75%, Table 12). Most of those on ARVs (74%) reported always following their dosing schedule within the past three days.

Table 12: ART use and treatment adherence

	No.	(%)
Ever taken ART		
Yes	125	(94.7)
No	7	(5.3)
Currently taking ART		
Yes	118	(89.4)
No	14	(10.6)
TOTAL	**132**	**(100)**
ART has special instructions*		
Yes	79	(67.0)
No	30	(25.4)
Don't Know	9	(7.6)
TOTAL	**118**	**(100)**
Followed special instructions during past 3 days†		
Always	59	(74.7)
Most of the time	8	(10.1)
About half of the time	2	(2.5)
Rarely	3	(3.8)
Never	7	(8.9)
TOTAL	**79**	**(100)**
Followed dosing schedule during past 3 days*		
Always	87	(73.7)
Most of the time	23	(19.5)
About half of the time	2	(1.7)
Rarely	2	(1.7)
Never	4	(3.4)
TOTAL	**118**	**(100)**

*Questions only asked of those currently on ART. †Question only asked of those who reported having special instructions for ART.

Among participants reporting current ART use (n=118), 37% said that they never missed taking medications, while 19% said they missed a dose within the last week (Table 13). Overall, 59% said that they had ever missed a dose. For those who did report missing a dose (n=70), the most common reason for the last missing dose was forgetting (n=21), followed by a change in a daily routine (n=17).

Table 13: Number, percentage, timing of, and reasons for last missed ART dose

	No.	(%)
Last time missed ART*†		
Never skip meds	44	(37.3)
Within the past week	22	(18.6)
1 to 2 weeks ago	16	(13.6)
3 to 4 weeks ago	4	(3.4)
1 to 3 months ago	10	(8.5)
More than 3 months ago	18	(15.3)
Don't know	4	(3.4)
TOTAL	**118**	**(100)**
Reasons for last missing ART§		
Forgot to take them	21	(30.0)
Change in daily routine	17	(24.3)
Problem with prescription or refill	7	(10.0)
Felt sick or tired	6	(8.6)
Side effects	3	(4.3)
Drinking or using drugs	3	(4.3)
Money or insurance issues	2	(2.9)
Felt depressed or overwhelmed	1	(1.4)
Other	16	(22.9)

*Percentages do not add to 100% due to rounding.
†Question only asked of those currently on ART.
§Question only asked of those who reported missing medications. N=70. **Respondents were able to choose more than one reason for missing ART, therefore percentages total to >100%.

Most respondents on medication (70.3%) reported never being troubled by side effects during the 30 days preceding the interview (Table 14). Only seven respondents on medication said that they had been bothered by side effects most of the time or always within the past 30 days. Ninety-two percent of respondents reported they were very sure or extremely sure that they would be able to take all of their medication as directed, that their medication would have a positive effect on their health (88%), and that they would develop drug resistance if they did not take their medication as directed (87%).

Table 14: Number and percentage of respondents reporting recent ART side effects and positive medication beliefs

	No.	(%)*
How often troubled by ART side effects in past 30 days?†		
Never	83	(70.3)
Rarely	15	(12.7)
About half the time	13	(11.0)
Most of the time	4	(3.4)
Always	3	(2.5)
How sure that you will be able to take all medications as directed?†		
Extremely sure	65	(55.1)
Very sure	43	(36.4)
Somewhat sure	9	(7.6)
Not at all sure	1	(0.8)
How sure that medication will have positive effect on health?†		
Extremely sure	63	(53.4)
Very sure	41	(34.7)
Somewhat sure	10	(8.5)
Not at all sure	2	(1.7)
Don't know	2	(1.7)
How sure that you will develop resistance if medication not taken as instructed?†		
Extremely sure	54	(45.8)
Very sure	49	(41.5)
Somewhat sure	9	(7.6)
Not at all sure	4	(3.4)
Don't know	2	(1.7)
TOTAL	**118**	**(100)**

*Percentages do not add to 100% due to rounding.

†Questions only asked of those currently taking medications.

Respondents who were on ART were also asked about their level of satisfaction with support from friends and family members and the extent to which their friends and family helped them remember to take their medications (Table 15). Over half (59%) reported that they were very satisfied with their support from family and friends. However, most (63%) also reported that their friends and family members did not provide assistance with remembering to take medications.

Table 15: Number and percentage, respondents reporting support from family and friends

	No. *	(%)
How satisfied with support from friends and family members?		
Very satisfied	70	(59.3)
Somewhat satisfied	34	(28.8)
Somewhat dissatisfied	4	(3.4)
Very dissatisfied	8	(6.8)
Don't know	2	(1.7)
To what extent do friends and family help you remember to take medications?		
A lot	23	(19.5)
Somewhat	10	(8.5)
A little	11	(9.3)
Not at all	74	(62.7)
TOTAL	**118**	(100)

*Questions only asked of those currently taking ART medications.

Among those on ART, the most frequently reported source of payment for those drugs was ADAP (47%) followed by Medicaid (27%), Medicare (25%), and private insurance (21%, Table 16). Fifteen respondents said that they paid for ART out-of-pocket.

Table 16: Number and percentage of payment source for ART in past 12 months

	No.	(%)†
How were ART medications paid for?		
Private insurance/HMO	25	(20.7)
Medicaid	33	(27.3)
Medicare	30	(24.8)
ADAP	57	(47.1)
Out-of-pocket	15	(12.4)
AIDS service organization	2	(1.7)
Public clinic	2	(1.7)
Clinical trial/drug study	1	(0.8)
Other	4	(3.3)

*N=121. Questions asked of all respondents who had taken ART within last 12 months.
†Percentages add to >100% as respondents were allowed to select more than one source of payment.

Among respondents who had taken ARVs at any point in the last 12 months (n=121), ten reported taking a drug holiday that was not recommended by a doctor during that period, which was defined as not taking any medications for two or more days in a row without being instructed to do so by a doctor (Table 17). Seven respondents said that they had participated in an HIV clinical trial in the past 12 months.

Table 17: Number and percentage of respondents taking a drug holiday or participating in HIV clinical trial, past 12 months

	No.	(%)
Took drug holiday in past 12 months*		
Yes	10	(8.3)
No	111	(91.7)
TOTAL	**121**	**(100)**
Participated in HIV clinical trial in past 12 months		
Yes	7	(5.3)
No	125	(94.7)
TOTAL	**132**	**(100)**

*Question only asked of those who had been on ART in past 12 months.

Sexual Behavior

Respondents were asked a series of questions about their sexual activities within the 12 month-period before the interview. The content of these questions varied depending upon whether the respondent was male, female, or transgender. Respondents were asked about the number and gender of their partners (gender of partners was not asked of transgendered respondents), whether their partners were main or casual partners, whether they had discussed their HIV status with their partners before initiating sexual activity, whether they had engaged in unprotected vaginal or anal sex with any partners, and whether they had exchanged sex for things such as money,drugs, food, shelter or transportation with any of their partners. In addition, if respondents reported engaging in unprotected vaginal or anal sex, they were asked if their partners were HIV positive.

Of the 132 interview respondents, 71 (54%) reported engaging in oral, vaginal or anal sex with at least one partner within the last 12 months, with 56% of male respondents, 48% of female respondents, and 75% of transgendered respondents indicating any sexual activity (Table 18). Two respondents (one male and one female) refused to disclose any sexual history information to the interviewers.

Table 18: Number and percentage of respondents reporting any sexual activity within past 12 months, by gender

	Males (n=82)		Females (n=46)		Transgender (n=4)		Total (n=132)	
	No.	**(%)**	**No.**	**(%)**	**No.**	**(%)**	**No.**	**(%)**
Reported sex in past 12 months								
Yes	46	(56.1)	22	(47.8)	3	(75.0)	71	(53.8)
No	35	(42.7)	23	(50.0)	1	(25.0)	59	(44.7)
Refused to disclose	1	(1.2)	1	(2.2)	0	(0.0)	2	(1.5)

Among male respondents, 39.0% reported having sex with men in the previous year, while 18% reported having sex with women (Table 19). One male reported having sex with men and women. Among female respondents, 46% reported having sex with men, and 4% reported having sex with women in the previous year. One female respondent reported having sex with men and women.

Table 19: Number and percentage of respondents reporting male or female partners in past 12 months, by gender

	Males* (n=82)		Females† (n=46)	
	No.	**(%)**	**No.**	**(%)§**
Had sex with males				
Yes	32	(39.0)	21	(45.7)
No	49	(59.8)	24	(52.2)
Refused to disclose	1	(1.2)	1	(2.2)
Had sex with females				
Yes	15	(18.3)	2	(4.3)
No	66	(80.5)	43	(93.5)
Refused to disclose	1	(1.2)	1	(2.2)

*One male respondent reported having sex with both males and females. †One female respondent reported having sex with both males and females. §Percentages may add to >100% due to rounding.

Fifty-six percent of sexually active, men who had sex with men (MSM) had two or more partners during the previous year (Table 20).

Table 20: Number and percentage of sexually active respondents reporting number of partners, types of partners, HIV status discussions, and unprotected sex, past 12 months

	MSM* (n=32)		MSW (n=15)		WSM (n=21)	
	No.	**(%)**	**No.**	**(%)**	**No.**	**(%)**
Number of partners in past 12 months†§						
1	14	(43.8)	9	(60.0)	18	(85.7)
2 or more	18	(56.3)	6	(40.0)	3	(14.3)
Type of partner in past 12 months†§						
Main only	12	(37.5)	9	(60.0)	18	(85.7)
Casual only	14	(43.8)	6	(40.0)	1	(4.8)
Main and casual	6	(18.8)	0	(0.0)	2	(9.5)
Discussed HIV status before first sex†						
With all partners	24	(75.0)	9	(60.0)	14	(66.7)
With some/none of partners	8	(25.0)	6	(40.0)	7	(33.3)
Unprotected anal or vaginal sex in past 12 months**						
Yes	8	(25.0)	0	(0.0)	8	(38.1)
No	18	(56.3)	15	(100.0)	12	(57.1)

*MSM = Men who had sex with men; MSW = Men who had sex with women; WSM = Women who had sex with men. MSM and MSW are not mutually exclusive categories.
†Questions framed to include oral, vaginal, and anal sex.
§Percentages may not add to 100% due to rounding.
**Unprotected sex questions only referred to vaginal or anal sex . Therefore, numbers will not add up to category totals and percentages will not add up to 100%, as some sexually active respondents did not engage in vaginal or anal sex with their partner(s).

MSM reported the greatest range in the number of partners (1-50), with a median number of two partners reported (Table 21). Fourteen of the MSM reported all of their partners had been casual partners, while 12 classified all of their sexual partners as main partners, and an additional six reported they had main and casual sex partners in the previous year. Fifty-six percent of the sexually active MSM reported not engaging in unprotected anal sex with their partners in the previous year, compared to

eight who reported unprotected anal sex. Seventy-five percent of sexually active MSM reported they disclosed their HIV-positive status to all sex partners before engaging in any sexual activity, while an additional eight reported they disclosed their HIV-positive status with only some or none of their sex partners. *Because the overall number of sexually active MSM in the sample was small, caution should be taken when interpreting the findings.*

Table 21: Median and range, number of reported sex partners in past 12 months among sexually active respondents, by respondent sexual behavior classification

Respondent classification*	n	Min	Max	Median
MSM	32	1	50	2
MSW	15	1	4	1
WSM	21	1	3	1

*MSM = Men who had sex with men; MSW = Men who had sex with women; WSM = Women who had sex with men. MSM and MSW are not mutually exclusive categories.

Among men who had sex with women (MSW), 60% reported having only one partner in the previous year, with a range in the number of partners between 1 and 4 and a median of 1. Sixty percent reported that all of their partners had been main partners, while 40% reported all of their partners as casual partners. None of the MSW said that they had had both main and casual sex partners in the previous year; and none reported having unprotected anal or vaginal sex with any partners. Furthermore, 60% of MSW reported they discussed their HIV-positive status with all of their partners, while six reported they discussed their HIV-positive status with only some or none of their partners. *Again, because the number of sexually active MSW was small, these numbers cannot be generalized to all in-care, MSW in Virginia.*

Eight-six percent of women who had sex with men (WSM) reported one sex partner in the previous year. The number of male partners for this group ranged from 1 to 3, with a median of 1. Eighty-six percent classified all of their sex partners as main partners, with 5% reported having only casual partners, and 10% reported having both main and casual partners in the previous year. Fifty-seven percent of the sexually active WSM reported they did not have any unprotected anal or vaginal sex with their male partners, while 38% did have sex without a condom with at least one male partner. Sixty-seven percent of WSM reported they discussed their HIV-positive status with all of their male partner before engaging in sexual activity for the first time, and 33% WSM reported they disclosed their HIV-positive status with some or none of their male sex partners. *Once again, as the number of sexually active WSM in the sample was small, these findings should be interpreted with caution.* Data about the sexual behaviors of transgender respondents and women who had sex with women (WSW) are not presented in the tables, due to low number of transgender and WSW respondents.

Drug and Alcohol Use

The Drug and Alcohol Use section of the questionnaire asks about respondents' use of cigarettes, alcohol use within the last 12 months and 30 days, and use of illicit injection and non-injection drugs in the past 12 months. Responses to the questions found in this section are summarized in Tables 22-25 and Figure 1. Within this section, some of the skip patterns within the questionnaire were based on self-reported birth gender. That is, specific questions were asked of some participants and not others based on the previous responses to the birth gender question in the Demographics section. Therefore, references to participants' gender within the text of this section refer specifically to birth gender, for the sake of reporting consistency within this section.

Cigarette, Alcohol, and Illicit substance use

Most of the participants (64%) reported having smoked at least 100 cigarettes in their lifetime, though women (65%) were slightly more likely than men (63%) to report a history of smoking (Table 22).

Table 22: Number and percentage, respondents' reported lifetime history of smoking, by birth gender

	Males (n=83)		Females (n=49)		Total (n=132)	
	No.	**(%)**	**No.**	**(%)**	**No.**	**(%)**
Smoked at least 100 cigarettes in lifetime						
Yes	52	(62.7)	32	(65.3)	84	(63.6)
No	31	(37.3)	17	(34.7)	48	(36.4)

In addition, of those who had ever smoked (n=84), most (61%) reported that they currently smoked on a daily basis, and the percentages for women (59.4%) and men (62%) varied only slightly (Table 23). However, a larger percentage of females who have ever smoked (31%) reported not smoking at all currently, compared to males (25%).

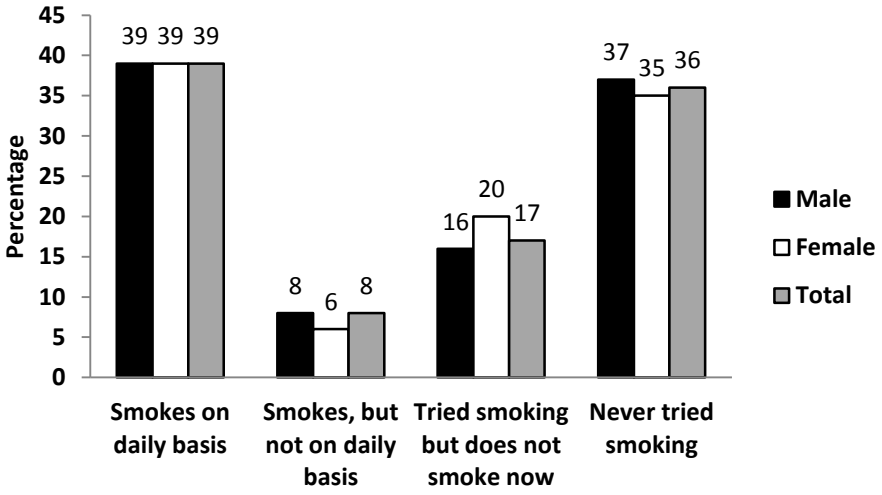
Table 23: Number and percentage, current smoking frequency among those who have ever smoked, by birth gender

	Males (n=52)		Females (n=32)		Total (n=84)	
	No.	**(%)**	**No.**	**%**	**No.**	**%**
How often does respondent smoke now?*						
Daily	32	(61.5)	19	(59.4)	51	(60.7)
Weekly	2	(3.8)	1	(3.1)	3	(3.6)
Monthly	4	(7.7)	0	(0.0)	4	(4.8)
Less than monthly	1	(1.9)	2	(6.3)	3	(3.6)
Never	13	(25.0)	10	(31.3)	23	(27.4)

*Respondents were only asked this question if they reported smoking at least 100 cigarettes during their lifetimes.

A summary of current smoking status among all respondents is presented in Figure 1. Approximately the same proportion of respondents indicated that they had never smoked (36%) as indicated that they were daily smokers (39%). Furthermore, current smoking status rates were similar across gender lines.

Figure 1: Current smoking status among all respondents, by birth gender and total



Nearly half of females (49%) reported never drinking alcohol in the past 12 months, compared to only 30% of males (Table 24). Males more often reported drinking alcohol on a daily or weekly basis (29%) in the past 12 months compared to females (8%).

Table 24: Number and percentage, respondents' alcohol use frequency in past 12 months, by birth gender

	Males (n=83)		Females (n=49)		Total (n=132)	
	No.	(%)	No.	(%)	No.	(%)
How often did respodents drink in past 12 months?						
Daily	12	(14.5)	0	(0.0)	12	(9.1)
Weekly	12	(14.5)	4	(8.2)	16	(12.1)
Monthly	7	(8.4)	3	(6.1)	10	(7.6)
Less than monthly	27	(32.5)	18	(36.7)	45	(34.1)
Never	25	(30.1)	24	(49.0)	49	(37.1)

Among those who did report drinking alcohol during the past 12 months (n=83), one third (34%) reported that they did not drink at all in the past 30 days, while 18% stated that they drank on 11 to 30 of the past 30 days (Table 25). Among those who drank in the past 30 days (n=55), most (75%) reported consuming one to three drinks on a typical day when they were drinking. Only 31% (n=17) of those who had consumed alcohol within the last month had engaged in binge drinking within that period, defined as consuming four or more drinks in one sitting for females and consuming five or more drinks in one sitting for males.

Across the whole sample, 42% of all respondents reported consuming any alcohol in the past 30 days, and 31% engaged in binge drinking within that period. Among the respondents who reported both drinking alcohol and having sex within the past 12 months (n=50), 18 said that they drank alcohol before or during sex during that period (not in table).

Table 25: Number and percentage, respondents' drinking habits in past 30 days

	No.	(%)
Drinking frequency*		
0 days	28	(33.7)
1 to 5 days	29	(34.9)
6 to 10 days	11	(13.3)
11 to 30 days	15	(18.1)
TOTAL	**83**	**(100)**
Number of drinks consumed on typical day when drinking†		
1 to 3	41	(74.5)
4 or more	14	(25.5)
Engaged in binge drinking†		
Yes	17	(30.9)
No	37	(67.3)
Don't know	1	(1.8)
TOTAL	**55**	**(100)**

*Question only asked of those who reported drinking in past 12 months. †Questions only asked of those who reported drinking frequency ≥1 day in past month.

Of the 132 respondents, 21 (16%) reported using any non-injection drugs in the past 12 months (not in table). All 21 of the respondents who reported using non-injection drugs reported using marijuana. No one reported use of any injection drugs within the 12 months prior to the interview.

Prevention Activities

A section of the questionnaire collected information about respondents' experiences with selected prevention activities in the 12 months before the interview. Respondents were asked about receiving free condoms and HIV/STD prevention discussions with health professionals and within structured small groups. The responses to these questions are summarized in Tables 26 and 27. Approximately half (50.8%) of the respondents reported receiving free condoms from some source within the past 12 months, most frequently from a doctor's office or other health clinic (Table 26).

Table 26: Number and percentage, respondents receiving free condoms in past 12 months

	No.	(%)
Received free condoms in past 12 months		
Yes	67	(50.8)
No	65	(49.2)
TOTAL	**132**	**(100)**
Where received free condoms*†		
Doctor's office or other health clinic	47	(70.2)
Community-based organization	10	(14.9)
Social venue	7	(10.4
STD clinic	6	(9.0)
Other§	4	(6.0)

*Questions only asked of those who reported receiving free condoms. N=67.
†Percentages will add to >100% as respondents were allowed to select more than one option.
§Other includes family planning clinics, special events, and an "Other" category.

A majority of respondents (55.3%) also reported having a one-on-one conversation with a doctor, nurse or other health care worker about HIV or STD prevention during the same period (Table 27). Overall, 62.1% of all respondents had an HIV or STD prevention conversation within one of the three settings named in the questionnaire in the year before the interview.

Table 27: Number and percentage of respondents reporting formal HIV/STD prevention conversations, past 12 months

	No.	(%)
Sources of prevention conversations*†		
Outreach worker, counselor, prevention program worker	46	(34.9)
Doctor, nurse, other health care worker	73	(55.3)
Small group discussion	23	(17.4)
Any prevention discussion		
Yes	82	(62.1)
No	50	(37.9)
TOTAL	**132**	**(100)**

*Respondents may have had more than one kind of prevention conversation. Therefore, percentages will add to >100%.
†N=132.

Depression

The Depression section of the questionnaire includes an eight-item survey of depression symptoms known as the PHQ-8 (Patient Health Questionnaire-8). Respondents are asked to state how often the mood-related situations in the statements have occurred in the two weeks prior to the interview. Responses to each of the eight items are summarized in Table 28.

Table 28: Number and percentage, PHQ-8 item responses, among all participants

	Not at all		Several days		More than half the days		Nearly every day	
Anxiety and Depression Inventory Items*†	**No.**	**(%)**	**No.**	**(%)**	**No.**	**(%)**	**No.**	**(%)**
Little interest or pleasure in doing things	70	(53.0)	32	(24.2)	17	(12.9)	13	(9.8)
Feeling down, depressed or hopeless	69	(52.3)	39	(29.5)	13	(9.8)	11	(8.3)
Trouble falling or staying asleep or sleeping too often	76	(57.6)	22	(16.7)	12	(9.1)	22	(16.7)
Feeling tired or having little energy	46	(34.8)	43	(32.6)	17	(12.9)	26	(19.7)
Poor appetite or overeating	81	(61.4)	22	(16.7)	9	(6.8)	20	(15.2)
Feeling bad about yourself, that you are a failure, or have let yourself or your family down	88	(66.7)	27	(20.5)	6	(4.5)	11	(8.3)
Trouble concentrating on things, such as reading the newspaper or watching television	98	(74.2)	17	(12.9)	7	(5.3)	9	(6.8)
Moving or speaking so slowly that other people could have noticed or being so fidgety or restless that you have been moving around a lot more than usual	108	(81.8)	12	(9.1)	5	(3.8)	7	(5.3)

*N=132
†Percentages will not add up to 100% due to missing values and rounding.

According to reports in other literature, the PHQ-8 can be used as a valid diagnostic measure of clinical depression symptoms in the general population (6). By the validated scoring method, the four responses can be assigned a score from 0 (“Not at All”) to 3 (“Nearly Every Day”), and these scores can be aggregated to generate an overall total for the instrument, with total scores equal to or greater than 10 indicative of clinical depression symptoms. The number and percentage of respondents who met the criteria for moderate to severe clinical depression symptoms according to this scoring scheme are found in Table 29. Overall, 21% of the sample met the scoring criteria (PHQ-8 score ≥ 10) for clinical depression. Higher proportions of moderate to severe depression symptoms were found for women than for men (26% vs. 18%).

Table 29: NUMBER AND PERCENTAGE, RESPONDENTS MEETING THE CRITERIA FOR MODERATE TO SEVERE DEPRESSION SYMPTOMS, BY GENDER AND TOTAL

	Males (n=82)		Females (n=46)		Transgenders (n=4)		Total (n=132)	
	No.	(%)	No.	(%)	No.	(%)	No.	(%)
Clincal depression symptoms								
Yes (PHQ-8 score ≥10)	15	(18.3)	12	(26.1)	1	(25.0)	28	(21.2)
No (PHQ-8 score <10)	67	(81.7)	34	(73.9)	3	(75.0)	104	(78.8)

Health Conditions and Preventive Therapy

This section of the interview covered information about CD4 and viral load testing, hepatitis, influenza and human papillomavirus (HPV) vaccination, and STD diagnosis and treatment history. Responses to these questions are summarized in Tables 30-33 and Figures 2 and 3.

Participants were asked to state both their lowest and first CD4 test results (Table 30). In both cases, significant numbers of participants were unable to recall (or refused to state) this information (22% to 33%). Nearly a quarter of participants (24%) reported that their lowest CD4 result had been between 0 and 99 cells/mm^3. Almost half of the respondents (48%) reported a value of 200 cells/mm^3 or higher for their first CD4 test result.

Table 30: Number and percentage, respondents' lowest and first CD4 count values

	No.	(%)*
Lowest ever CD4 count		
500 cells/mm^3 or more	16	(12.1)
200 to 499 cells/mm^3	43	(32.6)
100 to 199 cells/mm^3	13	(9.8)
0 to 99 cells/mm^3	31	(23.5)
Don't know/refused	29	(22.0)
First ever CD4 count		
500 cells/mm^3 or more	32	(24.2)
200 to 499 cells/mm^3	32	(24.2)
100 to 199 cells/mm^3	10	(7.6)
0 to 99 cells/mm^3	14	(10.6)
Don't know	44	(33.3)
TOTAL	**132**	**(100)**

*Percentages may not add to 100% due to rounding.

Greater proportions of the respondents were unable to recall their highest and first HIV viral load test results (36% to 42%; Table 31). Only 11% reported that their highest viral load had been undetectable, and 15% reported that their first viral load had been >100,000 viral copies/mL. A higher percentage (22%) reported that their highest viral load had been >100,000 viral copies/mL, while an additional 25% stated that their highest result was between 5,000 and 100,000 viral copies/mL.

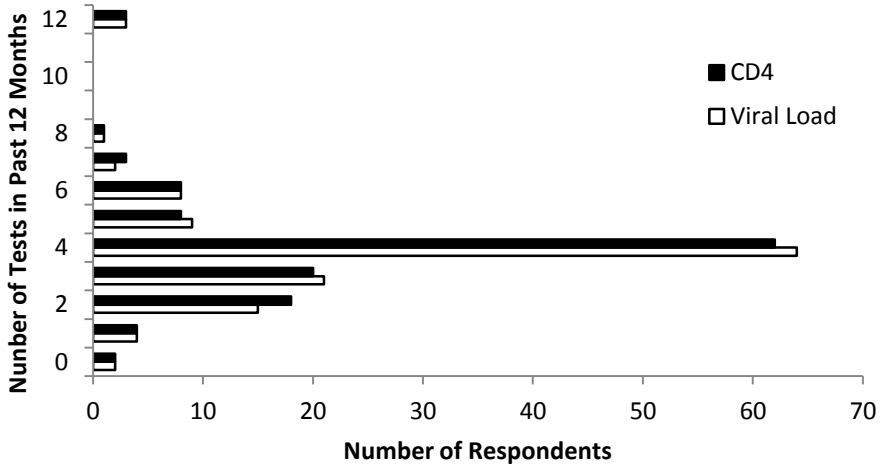
Table 31: Number and percentage, respondents' highest and first HIV viral load values

	No.	(%)*
Highest viral load ever		
>100,000 viral copies/mL	29	(22.0)
5,000 to 100,000 viral copies/mL	33	(25.0)
Detectable but <5,000 viral copies/mL	6	(4.5)
Undetectable	15	(11.4)
Don't Know	48	(36.4)
First ever viral load		
>100,000 viral copies/mL	20	(15.2)
5,000 to 100,000 viral copies/mL	26	(19.7)
Detectable but <5,000 viral copies/mL	14	(10.6)
Undetectable	15	(11.4)
Don't Know	56	(42.4)
TOTAL	**132**	**(100)**

*One respondent reported not knowing if he/she had ever had a viral load test and did not answer these questions. Therefore, percentages will not add to 100%.

Most respondents reported receiving three or four CD4 (62%) or HIV viral load (64%) tests within the past 12 months (Figure 2). The number of CD4 and viral load tests received ranged from 0 to 12 with a median of 4 for both tests. Two respondents reported not receiving any CD4 tests, and two respondents reported not receiving any HIV viral load tests in the past 12 months.

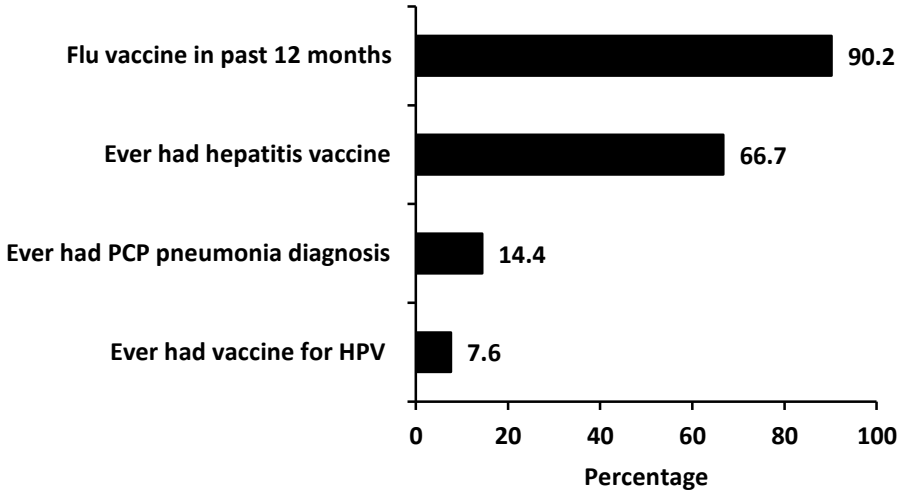
Figure 2: Number of CD4 and HIV viral load tests, past 12 months



Most respondents (67%) reported receiving a hepatitis vaccine at some point in their lives (Figure 3). Only 19 respondents (14%) said that they had ever been told that they had PCP (pneumonia caused by *Pneumocystis jiroveci,* an AIDS-defining opportunistic illness). Ten respondents (8%) said that they had received a vaccine for HPV. Ninety percent of respondents had received an influenza vaccination in the past 12 months. Most of the respondents receiving the

influenza vaccine received it at a doctor's office (75%) or health department clinic (14%), with fewer than 10 respondents receiving the influenza vaccine at the drugstore or at the workplace (not in table).

Figure 3: PCP diagnosis and vaccination history



Among all respondents, 45% reported having a test or exam to check for an STD within the past 12 months, and only 8% said that they had been to a clinic for STD treatment in that period (Table 32). Of those who did receive a test or exam (n=59), 22 had been diagnosed with one or more STDs in that time period. The most common STD diagnosis was genital herpes (n=11), followed by syphilis (n=8), genital warts (n=6), Chlamydia (n=5), and gonorrhea (n=3) (not in table). A very small number of respondents (n=4) reported being diagnosed with more than one STD in the past 12 months.

Table 32: Number and percentage, respondents' reported STD testing and diagnosis history, past 12 months

	No.	(%)
Test or exam for STD in past 12 months		
Yes	59	(44.7)
No	68	(51.5)
Don't Know	5	(3.8)
Been to clinic for STD treatment in past 12 months		
Yes	10	(7.6)
No	122	(92.4)
TOTAL	**132**	
Diagnosed with STD in past 12 months*		
Yes	22	(37.3)
No	37	(62.7)
TOTAL	**59**	**(100)**

*Questions only asked of those who reported having a test or exam to check for an STD.

Gynecological and Reproductive History

When respondents' birth gender and self-reported gender are both female, interviewers administer an additional Gynecological and Reproductive History module. In 2009, there were 46 female (by birth and self-identified gender) respondents. Females were asked about their history of pelvic exams and Pap smears in the past 12 months, as well as their history of pregnancy since testing positive and within the last 12 months. Responses to these questionnaire items are summarized in Table 33.

Most women reported receiving a pelvic exam (74%) and a Pap smear (74%) in the past 12 months (Table 33). Furthermore, of the 46 females in the sample, 17 (37%) had been pregnant at any point since testing positive. Slightly more than half of these women (53%) had been pregnant more than once (not in table). Most of the women who reported pregnancies since testing positive had given birth (88%). Only one woman reported being pregnant within the 12 months preceding the interview.

Table 33: Number and percentage, females reporting gynecological and reproductive history

	No.	(%)
Pelvic exam in past 12 months*		
Yes	34	(73.9)
No	12	(26.1)
Pap smear in past 12 months*		
Yes	34	(73.9)
No	12	(26.1)
Pregnant since testing positive*		
Yes	17	(37.0)
No	29	(63.0)
TOTAL	**46**	**(100)**

*Only asked of those whose birth gender and self-reported gender were both female.

Discussion

Demographics

For 2009, MMP respondents differ significantly by race/ethnicity, gender and age from the population of Virginia as a whole. Due to the complex survey sampling design, MMP demographic make-up more closely resembles that of all adult HIV cases in Virginia in 2009. However, there were important differences. According to the Behavioral Risk Factor Surveillance System (BRFSS), in 2009 the population of Virginia was mostly made up of non-Hispanic, Whites (76%), with decreasing percentages of non-Hispanic, Blacks (14%), Hispanics (5%), and those of other races (including multiple races, 5%) (7). However, according to unpublished Virginia HIV surveillance data, the majority of the 22,326 Virginia adults living with HIV in 2009 were non-Hispanic, Black (60%), with smaller percentages of non-Hispanic, Whites (31%), Hispanics (7%), and those of other races (including multiple races, 3%) (8). By comparison, MMP respondents were slightly more likely than all Virginians with HIV to be non-Hispanic, Black (63%) or Hispanic (9%) and slightly less likely to be non-Hispanic, White (26%) or of another race (2%). Furthermore, while the population of Virginia in 2009 was roughly evenly divided by gender (51% female, 49% male), there was a pronounced gender imbalance in both the population of Virginians known to be living with HIV in 2009 (26% female, 74% male) and in MMP respondents in 2009 (35% female, 62% male, 3% transgender)[3] (7,8).

Age distributions of the three groups were also different, with those living with HIV in 2009 more likely to be older than Virginians as a whole, and the MMP respondents more likely to be older than both all adult Virginians and adult Virginians living with HIV in 2009. The largest group of adult Virginians were between 45 and 54 years of age in 2009 (20%) followed by an additional 19% who were between the ages of 35 and 44 (7). However, among adult Virginians living with HIV in 2009, these age groups represented much larger percentages of the total population, with 36% between the ages of 45 and 54 and 29% between 35 and 44 (8). Among MMP respondents, the largest age group was between 45 and 54 (42%), and the next largest group was 55 years of age or older (24%). Therefore, almost two-thirds of MMP respondents (66%) were 45 years old or older at the time of interview.

MMP respondents tended to have lower incomes, report lower levels of educational attainment, and were more likely to lack health insurance than the Virginia population as a whole. Although 59% of Virginia's population had household incomes of $50,000 or more in 2009 (7), only 15% of MMP respondents reported a comparable household income level. Furthermore, 40% of MMP respondents were living at or below the poverty line, while only 10% of Virginians overall were living below the poverty line in 2009, according to the U.S. Census Bureau (9). Additionally, though only 8% of adults in Virginia had not completed high school in 2009 (7), the figure was 24% for MMP respondents. A higher percentage of MMP respondents also lacked health coverage (28%) when compared with adults in Virginia in 2009 (14%) (7).

Access to Care and Unmet Need for Dental Services

Although all respondents reported having a usual source of HIV care, 13% reported receiving HIV care at emergency rooms or urgent care centers in the past 12 months, and 9% reported being admitted to a hospital for an HIV-related illness in the same period. This suggests that there may still be issues for some with access to HIV care, compliance with HIV treatment regimens, or other unknown factors that complicate adequate medical treatment.

Dental care was not only a frequently-used service, it was also the service for which respondents reported the greatest unmet need, with almost one in four respondents (24%) stating that they had needed but had been unable to get dental care in the 12 months prior to the interview. By comparison, the HIV Cost and Services Utilization Study (HCSUS) found that 19% of patients in care for HIV had a recent perceived unmet need for dental care (10). People living with HIV/AIDS (PLWHA)

are at greater risk for dental disease and antiretroviral medications can cause dry mouth, which is known to contribute to cavity formation and periodontal disease (11). Oral complications of HIV can affect quality of life and negatively influence nutrition (11,12).

Given that many of the 2009 MMP respondents reported relying on Medicaid for their health coverage, it is important to note that Virginia Medicaid only covers routine dental care for enrollees who are less than 21 years of age (13). Furthermore, Medicare (also a primary source of health coverage for Virginia MMP respondents) does not cover most dental care, including routine cleanings, fillings and extractions (14). According to the HCSUS findings, those most at risk for having an unmet need for dental care are African Americans, those who have not completed high school, those with no dental insurance and those who rely on Medicaid programs that did not provide dental coverage (15). Furthermore, this study also found that these same groups (in addition to the unemployed and those making less than $10,000 per year) were also at greater risk for perceiving themselves to have an unmet need for dental care. MMP respondents who reported an unmet need for dental care were asked to state a main reason why they had been unable to access dental services, but due to the high number of nonstandard responses to this question, it is difficult to characterize the data collected on this point.

Antiretroviral Therapy: Uptake, Adherence and Sources of Payment

Antiretroviral therapy improves survival rates for those living with HIV, prevents HIV/AIDS complications, and reduces risk for HIV transmission (16). Individuals with HIV who have higher CD4 counts (>350 cells/mm^3) may still experience serious health effects due to HIV, including organ damage and immune dysfunction that may be irreversible (16). Consequently, the federal Guidelines for the Use of Antiretroviral Agents in HIV-1-Infected Adults and Adolescents note that the use of antiretrovirals (ARVs) in those with CD4 counts ≤500 cells/mm^3 is strongly recommended, and use in those with counts greater than 500 cells/mm^3 is moderately recommended (17).

Uptake of ART in 2009 Virginia MMP respondents was high, with most respondents on ART at the time of interview (89%) and a higher percentage reporting ever taking ART (95%). However, a significant percentage of MMP respondents who were on ART (25%) indicated that they did not always follow their recommended dosing schedule in the last three days, and only 37% of those on ART said they never missed a dose of their medications. Nineteen percent of respondents taking ART said they had missed a dose within the week before the interview. ART adherence is a primary concern in those who are in care for HIV, and adherence levels are important predictors of poor health outcomes, such as progression to AIDS (16). In the future, Virginia MMP hopes to develop a clearer picture of ART adherence among respondents through an analysis of the regimen-specific data that are captured by the questionnaire.

Sexual Behavior

Almost half of the 132 respondents (45%) stated that they had not engaged in sexual activity in the year before the interview. Given the smaller number of participants reporting sexual activity, and the subclassification of sexual activity by gender of the respondent and gender of the respondent's partners, it is difficult to draw any conclusions about MMP respondents' sexual behaviors and risk profiles. Most sexually active respondents reported having only one partner in the past 12 months, discussing their HIV status with all of their partners before having sex for the first time, and not having unprotected vaginal or anal sex in that period. Subsets of respondents did report engaging in risky sexual behaviors. *However caution should be taken with all of the sexual behavior data from this dataset due to the small number of respondents reporting any sexual activity and the even smaller size of the subpopulations by which it makes sense to stratify sexual behavior (MSM, MSW, WSM, WSW)*. It may be possible to comment further on these issues when data from future

cycles are available and as interview participation improves.

Tobacco and Alcohol

More MMP respondents reported ever trying smoking (defined as smoking at least 100 cigarettes in lifetime) than in the Virginia population as a whole in 2009 (64% vs. 44%) (7). Furthermore, MMP respondents were much more likely than all Virginia adults to report currently smoking at any rate (46% vs. 19%) or smoking on a daily basis (38.6% vs. 13.9%) (7). This markedly higher smoking prevalence in MMP respondents is consistent with other studies that have found high smoking rates in people living with HIV/AIDS (18–20). According to the U.S. Surgeon General, there is sufficient scientific evidence to conclude that smoking is a causative agent for several types of cancer, cardiovascular disease, multiple chronic respiratory diseases, and several other serious health conditions (21). People living with HIV are at particular risk for poor health outcomes due to smoking, as smokers with HIV have been demonstrated to experience higher rates of chronic obstructive pulmonary disorder and bacterial pneumonia, have higher mortality rates, progress to AIDS more quickly, and have diminished viral control and immunological function when compared with nonsmokers with HIV (18, 22, 23). Furthermore, some research has found that HIV positive smokers have significantly lower ART adherence levels than HIV positive nonsmokers (24). When compared with other Virginia adults, MMP respondents were less likely to report drinking in the past month (42% vs. 52%) (7). Additionally, they reported engaging in binge drinking at about the same overall rate as the adult Virginia population (13% vs. 14%). The HIV Costs and Services Utilization Study found that, within a nationally representative sample of people living with HIV, respondents reported heavy alcohol use at about twice the rate (8%) of the general population (25). A later multi-site survey of patients from HIV primary care clinics in the U.S. found that 40% of participants reported alcohol use in the four weeks before the interview, which is comparable to the MMP finding (42%) (26). It also found that 11% of participants had engaged in hazardous/binge drinking in that period, which is also close to the percentage found in the 2009 MMP sample (13%). Alcohol use/abuse is an important consideration in the treatment of HIV, as it may negatively affect ART adherence, CD4 count, HIV viral load, and overall HIV disease progression (27–29). Abuse of harmful substances (including alcohol) is also a risk factor for sexual transmission of HIV and other STDs (25).

Depression and PHQ-8 scores

According to the Health Resources and Services Administration (HRSA), clinical depression is common among people living with HIV and can be caused by many factors, including the neurological effects of HIV infection itself, pre-existing psychiatric conditions, HIV-related morbidities, and antiretroviral therapy (16). Studies have found varying rates of clinical depression in people living with HIV, depending on the sample population and study methodology (30). One national study of mental health disorders in people living with HIV found a 12-month prevalence rate of 22% for clinical depression (31). Within the general population, however, much lower rates of depression have been found. For example, the U.S. National Comorbidity Survey Replication (NCS-R) found a 12-month general population rate of 6.7% for depression (32). Among Virginians, the CDC has estimated the prevalence rate for current depression to be 7.3% (95% CI = 6.0 to 8.9%), based on BRFSS data from 2006 (PHQ-8 score ≥10) (33). The rate of current depression symptoms (within the two weeks before the interview) among Virginia MMP interview respondents was much higher (21%), with higher rates for women (26%) than for men (18%). The high prevalence of depression symptoms in the 2009 MMP

[3] Neither BRFSS nor the Virginia HIV reporting system recognized the “transgender” category in 2009.

respondents is concerning as clinical depression has been associated with increased mortality, declining immune function and virologic failure in HIV-positive patients (34–37).

CD4 and HIV Viral Load Testing and Preventive Care

Significant numbers of respondents were unable to recall historical CD4 and HIV viral load testing information (22% to 42%, depending on the test). This may indicate that patient self-report of these measures is unreliable. CD4 and viral load testing data are also collected by the medical record abstraction (MRA) component of MMP data collection, though the MRA data for CD4 and viral load testing is generally more specific to the year before the interview or year before the patient was first contacted (referred to as the Surveillance Period).

Measures to prevent and diagnose co-infections that may complicate HIV treatment and increase illness burden on people living with HIV are important concerns for HIV patients and their health care providers. Of the preventive measures covered in the interview, uptake was highest for influenza vaccination within the last 12 months (90%). Only 67% of respondents stated that they had ever received a hepatitis vaccination, fewer than half (45%) said they had been tested for an STD in the past 12 months, and very few said they had ever received the HPV vaccine (14%). Nineteen respondents said they had ever been diagnosed with PCP, an opportunistic infection.

The CDC's Advisory Committee on Immunization Practices (ACIP) recommends that all HIV positive individuals with no evidence of active disease or prior immunity receive a complete hepatitis B vaccine series, while a complete hepatitis A series is recommended for specific risk groups, such as injection drug users, men who have sex with men, and hemophiliacs (38, 39). Some previous studies have found low rates of completed hepatitis vaccination series in HIV positive patients, though published data sources of hepatitis vaccination rates among HIV positive individuals are lacking (40,41). An annual influenza vaccine is recommended by ACIP for all individuals >6 months of age, including those with HIV (42). The HRSA clinical care guidelines further indicate that all HIV positive individuals be screened annually for STDs, though those at higher risk for STD acquisition should be screened more often (16).

Limitations

MMP was designed to produce representative data that (when weighted) could be generalized to the population of adults in care for HIV at both the project area and national level. However, due to the low response rate for the Virginia project area in 2009, the interview data from this cycle could not be weighted and the findings in this report cannot be considered representative of any group of people beyond the interviewed respondents.

Many of the questions in the questionnaire are only asked of a subset of the respondents. For example, specific sexual behavior information is only collected about the 12 month period prior to the interview, and respondents are only asked about specific STD diagnoses if they indicated that they had received a test or exam for an STD in the last 12 months. Therefore, the overall number of respondents who are asked particular questions may be quite small, and cell frequencies of less than five respondents often occur, further complicating attempts to interpret the data.

It is plausible that there may be biases inherent in both MMP interview recruiting and in the responses given during the interview by participants. Specifically, selection bias occurs when those who agree to participate in a study and those who do not differ substantially in one or more ways that would affect the findings of the study. For example, if sampled patients who agree to an MMP interview differ in some way that causes them to have better overall health or engage in less risky behaviors (sex, drug and alcohol use) than those who do not participate, then findings regarding health outcomes and risky behaviors would misstate the health status and risk profile of the full MMP

sample. Furthermore, another kind of bias, information bias, may also affect interview responses. As the MMP interview collects data about several socially sensitive topics (condom use, sexual partner HIV status, drug and alcohol use), it may be that some interview respondents preferentially offer more socially desirable answers and thereby understate their engagement with these activities. Additionally, as with any data collection methodology that depends on self-report of past behaviors or events, recall bias may affect participant responses.

Conclusion

While Virginia MMP data has been included in published national reports, local fact sheets and other publications, this is the first full-length report on MMP data produced by VDH. Given the limitations imposed by the low 2009 cycle interview response rate on data analysis and reporting, Virginia MMP staff have steadily worked to improve interview recruiting in subsequent cycles. Efforts are being made to increase the facility participation rate by building cooperative relationships between Virginia MMP staff and HIV care providers throughout the state. An increase in the facility participation rate will make project interview benchmarks more achievable, which may allow Virginia MMP to produce a weighted interview data set in the future.

VDH will continue to generate new publications of project area MMP data, in keeping with project goals of providing useful information about the adult, in-care population to HIV care providers, HIV planning groups, and policy makers at the local and state level. As cycle year data sets are becoming available for use more quickly, publications of state MMP data should become timelier, and therefore more useful, to all stakeholders. Virginia MMP is the only potential statewide source for many of the data points it collects, and a weighted interview dataset would provide population-based information about a broad range of HIV-related indicators, particularly when combined with MMP medical record abstraction data. MMP medical record review data are more complete as VDH conducts medical record abstractions under its HIV surveillance authority and is therefore able to collect medical record data about a larger number of MMP respondents annually.

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